

C1 36. An optical recording /reproducing apparatus for recording, reproducing or erasing an information signal onto/from any one of N types (where $N \geq 2$) of optical discs having first layers of different thicknesses, each type of said optical discs having at least said first layer being transparent and a second layer for storing information, said apparatus comprising:

a converging means having different numerical apertures for converging a light flux on said second layer of corresponding ones of said N types of optical discs,

wherein said converging means converges said light flux as a spot with a smaller diameter D and performs aberration correction at said spot by employing a larger one of said numerical apertures, with respect to one of said optical discs having a thinner one of said first layers, and

wherein a thickness of each of said first layers of said N types of optical discs is about 1.2mm or less.

38. An optical recording /reproducing system comprising;

C2 (a) an optical recording/reproducing apparatus for recording, reproducing or erasing an information signal onto/from any one of N types (where $N \geq 2$) of optical discs having first layers of different thicknesses, each type of said optical discs having at least said first layer being transparent and a second layer for storing information, said apparatus comprising:

photo detecting means for detecting reflective light from said optical discs; and

a converging means having different numerical apertures for converging a light flux on said second layer of corresponding ones of said N types of optical discs,

wherein said converging means converges said light flux as a spot with a smaller diameter D and performs aberration correction at said spot by employing a larger one of said numerical apertures, with respect to one of said optical discs having a thinner one of said first layers, and

wherein thicknesses of said first layers of said N types of optical discs are about 1.2mm or less than 1.2mm,

(b) a signal processing means, responsive to one of (i) a reproduction signal, corresponding to said information signal, from said photo detecting means and (ii) receipt of recording data, corresponding to said information signal, for recording on said disk, for generating an output signal corresponding to said information signal for performing one of a reproducing operation and a recording operation; and

(c) a system controlling means coupled to said signal processing means for controlling generation of the output signal of said signal processing means.

Please add the following new claims 39-45:

39. An optical recording/reproducing apparatus according to claim 36, wherein each of said first layers comprises a transparent substrate.

40. An optical recording/reproducing system according to claim 38, herein each of said first layers comprises a transparent substrate.

41. An optical recording/reproducing apparatus for recording, reproducing or erasing an information signal onto/from any one of N types (where $N \geq 2$) of optical discs having first layers of different thicknesses, each type of said optical discs having at least said first layer being transparent and a second layer for storing information, said apparatus comprising:

a converging optical system including a first converging means comprising a first numerical aperture and a second converging means comprising a second numerical aperture, said converging optical system for converging, by employing one of said first converging means and said second converging means, a light flux on said second layer of one of said N types of optical discs, said, first numerical aperture and said second numerical aperture being different from each other,

wherein said one of said first converging means and said second converging means employed by said converging optical system converges said light flux as a spot with a smaller diameter D and performs aberration correction at said spot, by

employing a larger one of said numerical apertures, with respect to one of said optical discs having a thinner one of said first layers, and

wherein a thickness of each of said first layers of said N types of optical discs is about 1.2mm or less.

42. An optical recording/reproducing apparatus according to claim 41, herein each of said first layers comprises a transparent substrate.

43. An optical recording/reproducing system comprising:

(a) an optical recording/reproducing apparatus for recording, reproducing or erasing an information signal onto/from any one of N types (where $N \geq 2$) of optical discs having first layers of different thicknesses, each type of said optical discs having at least said first layer being transparent and a second layer for storing information, said apparatus comprising:

photo detecting means for detecting reflective light from said optical discs; and

a converging optical system including a first converging means comprising a first numerical aperture and a second converging means comprising a second numerical aperture, said converging optical system for converging, by employing one of said first converging means and said second converging means, a light flux on said second layer of one of said N types of optical

discs, said first numerical aperture and said second numerical aperture being different from each other,

wherein said one of said first converging means and said second converging means employed by said converging optical system converges said light flux as a spot with a smaller diameter D and performs aberration correction at said spot, by employing a larger one of said numerical apertures, with respect to one of said optical discs having a thinner one of said first layers, and

wherein a thickness of each of said first layers of said N types of optical discs is about 1.2mm or less;

(b) a signal processing means, responsive to one of (i) a reproduction signal, corresponding to said information signal, from said photo detecting means and (ii) receipt of recording data, corresponding to said information signal, for recording on said disk, for generating an output signal corresponding to said information signal for performing one of a reproducing operation and a recording operation; and

(c) a system controlling means coupled to said signal processing means for controlling generation of the output signal of said signal processing means.

44. An optical recording/reproducing system according to claim 43, herein each of said first layers comprises a transparent substrate.

45. A system comprising:

3 (a) an optical recording/reproducing apparatus for recording, reproducing or erasing an information signal onto/from any one of N types (where $N \geq 2$) of optical discs having first layers of different thicknesses, each type of said optical discs having at least said first layer being transparent and a second layer for storing information, said apparatus comprising:

photo detecting means for detecting reflective light from said optical discs; and

a converging means having different numerical apertures for converging a light flux on said second layer of corresponding ones of said N types of optical discs,

wherein said converging means converges said light flux as a spot with a smaller diameter D and performs aberration correction at said spot by employing a larger one of said numerical apertures, with respect to one of said optical discs having a thinner one of said first layers, and

wherein thicknesses of said first layers of said N types of optical discs are about 1.2mm or less than 1.2mm,

(b) a signal processing apparatus including:

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signal processing means, responsive to one of (i) a reproduction signal, corresponding to said information signal, from said photo detecting means and (ii) receipt of recording data, corresponding to said information signal, for recording on said disk, for generating an output signal corresponding to said information signal for performing one of a reproducing operation and a recording operation on said discs; and

(c) a system controlling means coupled to said signal processing means for controlling generation of the output signal of said signal processing means.

REMARKS

At the outset, the Applicants wish to thank the Examiner for the courtesy shown to them and their attorney during a personal interview on August 2, 2000. During this interview, the above amendments to the claims were discussed, with the exception of new claim 45.

In addition to the claim amendments, this Preliminary Amendment makes formal changes to the drawings and specification. The changes to Figs. 4A and 4B correspond to drawing changes in the parent reissue application and are supported by the originally filed specification of the present continuation reissue application which refers to respective focal distances FD and working distances WD" of Figs. 4A and